

REMARKS

Claims 1-30 are pending in the instant application. According to the above amendments, claims 1, 6, 15 and 26 have been amended. Claim 5 has been cancelled. Support for the amendments to the claims may be seen in Figs. 5 and 6 of the application as well as in paragraphs [0026] and [0030] of the application, as it was published on January 9, 2003.

The Examiner rejected independent apparatus claims 1 and 15 as being obvious over Schlitt in view of Kurzinski. Schlitt discloses a combustion tube burner having a mixer tube 24 which conveys primary air and fuel. Secondary air is conveyed through openings 16 and also through a baffle 26 which has spacer fingers 27. Importantly, the secondary air extends on both sides of a central axis of the combustion tube burner. Schlitt is directed to improving burner turn down ranges and variations in flame length, as set forth in column 1, lines 6-18.

Kurzinski is directed to a burner having concentric tubes, the inside one of which conveys air and oxygen in an axial manner, and fuel is introduced around the periphery of the inner tube via outer tube 11. The air is inspirated into the burner by a high-pressure injection of oxygen through a throat section 20. The object of the invention in Kurzinski is to reduce the amount of substantially pure oxygen required during heating.

By contrast, amended claims 1 and 15 are directed to a burner for non-symmetrical combustion, wherein the air opening has its entire cross sectional area located on an opposite side of the burner central axis from the fuel exit opening. This is in stark contrast

to Schlitt, wherein the secondary air is also introduced on the same side of the burner central axis as the primary air/fuel opening 24. Furthermore, both claims 1 and 15 require a burner port block, which is present in neither Schlitt nor Kurzinski. The Examiner attempted to equate the burner port block in claims 1 and 15 with element 11 in Schlitt. However, the element 11 in Schlitt, a burner head, is positioned upstream of the air opening in Schlitt, not downstream of the air opening, as required by claims 1 and 15.

Schlitt has nothing to do with NOx reduction, rather it is directed to turn down range and flame length considerations. Likewise, Kurzinski is not directed to NOx reduction but rather to minimizing the use of pure oxygen in a burner. Furthermore, Kurzinski portrays circumferential introduction of the fuel around the oxygen/air mixture. This is not "non-symmetrical combustion" as required by claims 1 and 15. Air and fuel are introduced on both sides of the burner central axis, in Kurzinski, not on opposite sides as required by claims 1 and 15. Thus, one skilled in the art would not have looked to either Schlitt or Kurzinski for an answer to the problems solved by the invention set forth in amended claims 1 and 15.

Claims 2-4, 6-14 and 16-25 which depend from and at further limitation to claims 1 and 15, respectively, are also deemed allowable for the reasons above.

The Examiner rejected method claim 26 as obvious over Schlitt in view of Kurzinski and further in view of Morimoto and Robertson. Applicant has amended claim 26 to also clarify that the air opening in the claimed method has its entire cross-sectional area on the opposite side of the burner's central axis from the fuel exit opening. Thus, for the same reasons above, claim 26 would not have been obvious in view of Schlitt in combination with

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Kurzinski. As to Morimoto, that patent teaches symmetrical combustion, not providing an air opening on an opposite side of the burner central axis, as now required by claim 26. Likewise, Robertson et al. does not teach or suggest introducing air/oxygen on one side of a burner central axis with fuel introduced on the other side.

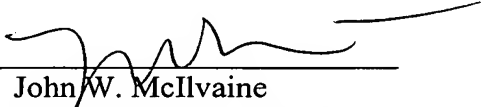
Finally, the Kurzinski apparatus as compared to the method of claim 26, would exhibit unacceptably high NOx production, since in Kurzinski the oxygen and fuel are mixed immediately without an intervening step of recirculating products of combustion into the combustion air, as now required by the "vitiating" step in amended claim 26. This is consistent with the fact that Kurzinski is not directed to NOx reduction.

Withdrawal of the rejections and allowance of claims 1-4 and 6-30 is requested.

Respectfully submitted

WEBB ZISENHEIM LOGSDON
ORKIN & HANSON, P.C.

By



John W. McIlvaine
Registration No. 34,219
Attorney for Applicants
700 Koppers Building
436 Seventh Avenue
Pittsburgh, PA 15219-1818
Telephone: 412-471-8815
Facsimile: 412-471-4094
E-mail: webblaw@webblaw.com